

## CLAIMS

1. A system for *dispatching and controlling of generation* of an electric power system consisting of a plurality of power units, said system for *dispatching and controlling of generation* comprising a computer with a *specified dispatching optimization module*, said computer connected by communications means to the power units, characterized in that

in the electric power system *consisting of* a plurality of subsystems each comprising a plurality of power plants provided with power units, said computer is a higher-layer computer and the specified *dispatching optimization module* is designed to determine parameters for an optimal *interchange of power and energy* between subsystems,

wherein said controlling system further comprises a plurality of computers according to a number of subsystems, said computers being lower-layer computers each comprising a specified subsystem *dispatch* optimization module designed to determine parameters for an optimal *dispatch of generation* between power plants within a subsystem, and a unit for computation of functional characteristics for each subsystem, wherein each lower-layer computer is connected by lower-layer communications means to respective power plants of respective subsystems, and

said *dispatching* and controlling system also comprises higher-layer communications means, wherein the lower-layer computers are connected to a higher-layer computer via the higher-layer communications means.

2. The system according to claim 1, characterized in that the higher-layer computer is designed to compute driving variables for a plurality of subsystems, wherein said variables for the plurality of subsystems are optimal power flows between subsystems.

3. The system according to claim 1, characterized in that the subsystem *functional* characteristic computation unit is designed to determine a relationship between subsystem boundary variables and subsystem Lagrange multipliers when optimality conditions for a subsystem *dispatch of generation* are met and internal *constraints* in the form of equalities and inequalities are *observed*.

4. The system according to claim 1, characterized in that the lower-layer communications means are provided as a telephone, digital communications, satellite or Internet/Intranet communications network.